

-26-

What is claimed is:

1. A robust coiled electrode for an electrochemical cell, comprising an elongated electrode assembly having a coiled but generally flat configuration, said assembly having a final winding comprised of a penultimate turn, a penultimate generally straight segment, a final turn, and a final generally straight segment, and wherein a lateral thickness dimension of the assembly of the final winding is less than the remaining windings; and a substantially planar current collector appropriately configured to be disposed adjacent an exterior surface of only either:
(configuration a) a majority of the final generally straight segment, or
(configuration b) a majority of the penultimate turn, a majority of the penultimate generally straight segment, and a majority of the final generally straight segment.
2. A coiled electrode according to claim 1, wherein the elongated electrode assembly further comprises: a first relatively thick member and a second relatively thin member coupled together to form an overlapping region.
3. A coiled electrode according to claim 2, further comprising, a spacer member disposed:
on at least the inner face of the final turn of the electrode assembly (configuration a) or,
on at least the inner face of: the penultimate turn, the penultimate generally straight segment, and the final turn of the electrode assembly (configuration b).

-27-

4. A coiled electrode according to claim 3, wherein said spacer member at least partially overlaps a portion of the current collector disposed adjacent the final generally straight segment.
5. A coiled electrode assembly according to claim 4, wherein said spacer member at least partially overlaps at least a portion of the overlapping region.
6. A coiled electrode according to claim 2, wherein said electrode assembly further comprises a sheet-type dielectric separator disposed over at least the exposed surface of the current collector.
7. A coiled electrode according to claim 6, wherein said dielectric separator substantially surrounds the electrode assembly.
8. A coiled electrode according to claim 7, wherein said dielectric separator further comprises: at least two layers of separator material, and both of said at least two layers disposed on opposing major faces of the electrode assembly.
9. A coiled electrode according to claim 8, wherein a peripheral edge of said at least two layers of separator material are sealed together to form a dielectric pouch around said electrode assembly.
10. A coiled electrode according to claim 2, wherein a portion of said current collector covers at least a portion of the overlapping region.
11. A coiled electrode according to claim 10, wherein said portion of said current collector comprises at least one minor axially extending arm of said current collector and a major portion of said current collector is disposed on the final generally straight segment.

-28-

12. A coiled electrode according to claim 2, wherein at least one reinforcing element is disposed adjacent a portion of said current collector, a portion of the overlapping region, or both a portion of said current collector and said overlapping region.

13. A coiled electrode according to claim 2, wherein said current collector comprises a solid planar member that is, as applicable, devoid of apertures adjacent the penultimate turn and said final turn and, as applicable, perforated adjacent the penultimate generally straight segment and the final generally straight segment.

14. A coiled electrode according to claim 13, wherein at least a portion of the current collector is disposed adjacent at least a portion of the overlapping region.

15. A coiled electrode according to claim 3, wherein said spacer member comprises at least two sheets of material, a first and a second of said at least two sheets coupled to opposing major surfaces along at least a part of a peripheral edge of the current collector.

16. A coiled electrode according to claim 2, wherein said elongated electrode assembly comprises a lithium material.

17. A coiled electrode according to claim 16, wherein said current collector comprises: a nickel material, a copper material, a titanium material.

18. A coiled electrode according to claim 6, further comprising an additional portion of separator material disposed adjacent a planar portion of the proximal, interior end of the elongated electrode assembly.